

# Psittacosis (*Chlamydophila* [*Chlamydia*] *psittaci*)

(Also known as Parrot Fever and Ornithosis)

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March 2004 HighPoint

## 1) THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic Agent

*Chlamydophila psittaci* (formerly *Chlamydia psittaci*) is the bacterium that causes psittacosis. *C. psittaci* infection in birds is known as avian chlamydiosis (AC).

### B. Clinical Description and Laboratory Diagnosis

The severity of this disease ranges from inapparent illness to systemic illness with severe pneumonia. Persons with symptomatic infections typically have acute onset of fever, chills, headache, rash, malaise, myalgia (muscle aches), and upper or lower respiratory tract disease. They may develop a nonproductive cough that can be accompanied by breathing difficulty and chest tightness. Radiographic findings include lobar or interstitial infiltrates. Human disease can affect organ systems other than the respiratory tract and result in endocarditis, myocarditis, thrombocytopenia, and hepatitis; fetal death has been reported in pregnant women. Relapses of illness may occur.

Laboratory confirmation is based upon isolation of *C. psittaci* from respiratory secretions, blood or postmortem tissue, or by demonstrating the presence of antibodies against *C. psittaci* by complement fixation, (CF), microimmunofluorescence (MIF), or immunoglobulin M (IgM) against *C. psittaci* by MIF.

### C. Reservoirs

*C. psittaci* is found primarily in psittacine birds (parrots, parakeets, macaws, love birds, and cockatoos); pigeons, poultry (turkeys, geese and ducks) and seabirds may also shed the infectious agent.

### D. Modes of Transmission

Human illness occurs from inhalation of the bacteria, which have been aerosolized from dried droppings, secretions, and dust from feathers of infected birds. Many seemingly healthy birds may shed the agent when stressed by crowding or transport. Pet birds are often implicated, especially when owners clean a cage with dried droppings. Occupational exposure can also occur when workers are exposed to areas with contaminated dust during clean up, repair or demolition. Laboratory infections have occurred as well. Farms or rendering plants may also be a source of exposure for workers. *C. psittaci* is resistant to drying and can stay infectious for several months. Person-to-person transmission (through paroxysmal coughing during acute illness) has been suggested but not proven.

### E. Incubation Period

The incubation period for psittacosis can range from 1–4 weeks, but it is usually 7 to 14 days.

### F. Period of Communicability or Infectious Period

Infected birds, including those that appear to be healthy, can be lifetime carriers of *C. psittaci* or have continuous or intermittent shedding periods of weeks or even months. If humans are contagious at all, it is during paroxysmal coughing with acute illness.

## G. Epidemiology

Psittacosis occurs worldwide and sporadically in any season. Most human cases are sporadic and are usually confined within families. Human outbreaks of psittacosis occasionally occur in individual households, pet shops, aviaries, and avian exhibits in zoos. Outbreaks among birds can occur in poultry flocks or other groups of birds such as in pet stores. Quarantine of imported birds and treatment of birds with antibiotics can reduce the risk of disease transmission from birds. In New Jersey, an average of one case of human psittacosis per year is reported to the NJDHSS.

## 2) Reporting Criteria And Laboratory Testing Services

### A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

#### CASE CLASSIFICATION

##### A. CONFIRMED

A clinically compatible case **AND:**

- Isolation of *C. psittaci* from respiratory secretions; **OR**
- Fourfold or greater increase in antibody against *C. psittaci* by complement fixation (CF); **OR** microimmunofluorescence (MIF) to a reciprocal titer of  $\geq 1:32$  between paired acute- and convalescent-phase serum specimens; **OR**
- Presence of immunoglobulin M antibody (IgM) against *C. psittaci* by MIF to a reciprocal titer of  $\geq 1:16$ .

Note: The serologic findings by CF also may occur as a result of infection with *C. pneumoniae* or *C. trachomatis*. The MIF might be more specific for infection with *C. psittaci*, but experience with and availability of this newer test are more limited.

##### B. PROBABLE

A clinically compatible case **AND:**

- Is epidemiologically linked to a confirmed case, **OR**
- Has supportive serology (e.g., *C. psittaci* titer  $\geq 1:32$  in one or more specimens obtained after onset of symptoms).

##### C. POSSIBLE

Not used.

### B. Laboratory Testing Services Available

The Public Health and Environmental Laboratories (PHEL) does not offer testing for this organism.

## 3) DISEASE REPORTING AND CASE INVESTIGATION

### A. Purpose of Surveillance and Reporting

- To help identify the source (e.g., pet stores, workers in a facility with excess dust or hidden bird droppings) and prevent further transmission to humans or other birds.
- To identify and control outbreaks.

### B. Laboratory and Healthcare Provider Reporting Requirements

The New Jersey Administrative Code (N.J.A.C. 8:57-1.8) stipulates that laboratories and health care providers report (by telephone, confidential fax, over the Internet using the Communicable Disease Reporting System [CDRS] or in writing) all cases of psittacosis defined by the reporting criteria in section 2A above to the local

health officer having jurisdiction over the locality in which the patient lives, or, if unknown, to the health officer in whose jurisdiction the health care provider requesting the laboratory examination is located.

### C. Local Health Departments Responsibilities

#### 1. Reporting Requirements

N.J.A.C. 8:57-1.8 stipulates that each local health officer must report the occurrence of any case of psittacosis, as defined by the reporting criteria in Section 2 A above. Current requirements are that cases be reported to the NJDHSS IZDP using a CDS-1 form. A report can be filed electronically over the Internet using the confidential and secure CDRS.

Veterinarians diagnosing a case of avian chlamydiosis shall report the case to the NJDHSS IZDP using the [Veterinarian Report of Known Or Suspected Avian Chlamydiosis Form](#). The IZDP staff will categorize the case as confirmed, probable or suspect and generate a letter to the owner of the bird, or the pet store, dealer or breeder. The IZDP will inform the local health department of the required or recommended control measures. Local health departments receiving reports of avian chlamydiosis from veterinarians directly should consult with the IZDP.

#### 2. Case Investigation

- a. The local health officer shall complete a CDS-1 form. Most of the information required on the form can be obtained from the healthcare provider or the medical record. Use the following guidelines for assistance in completing the form:
  - 1) Be sure to record the patient's full name, full address date of illness onset, symptom information and therapy information accurately.
  - 2) Complete diagnostic test information as requested on the form.
  - 3) Obtain exposure history to birds or facilities that sell or process birds during the 5 weeks prior to onset.
  - 4) Investigations of the source of infection, if associated with recently purchased birds should include a visit to the site where the infected bird is located and identification of the location where the bird was originally procured (e.g., pet shop, dealer, breeder, or quarantine station). Authorities should document the number and types of birds involved, the health status of potentially affected persons and birds, locations of facilities where birds were housed, relevant ventilation-related factors, and any treatment protocol. Examination of sales records for other birds that had contact with the infected bird may be considered
  - 5) If there have been several attempts to obtain patient information (e.g., the patient or healthcare provider does not return calls or respond to a letter, or the patient refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as possible. Please note on the form the reason why it could not be filled out completely. **If CDRS is used to report, enter the collected information into the "Comments" section.**

After completing the case report form, attach lab report(s) and mail (in an envelope marked "Confidential") to the NJDHSS IZDP or the report can be filed electronically over the Internet using the CDRS. The mailing address is:

NJDHSS  
Division of Epidemiology, Environmental and Occupational Health  
Infectious and Zoonotic Disease Program  
P.O. Box 369  
Trenton, NJ 08625-0369

- b. An epidemiologic investigation of a pet store or aviary should be initiated by the local health officer if a bird with confirmed or probable psittacosis (avian chlamydiosis) was procured from a pet store, breeder, or dealer within 60 days of the onset of signs of illness or several suspect avian cases have been identified from the same source. Other situations can be investigated at the discretion of the IZDP or local health officers.

Investigations involving recently purchased birds should include a visit to the site where the infected bird is located and identification of the location where the bird was originally procured (e.g., pet shop, dealer, breeder, or quarantine station). Authorities should document the number and types of birds involved, the health status of potentially affected persons and birds, locations of facilities where birds were housed, relevant ventilation-related factors, and any treatment protocol. Examination of sales records for other birds that had contact with the infected bird may be considered

- c. Institution of disease control measures is an integral part of case investigations. It is the responsibility of the local health officer to understand, and if necessary institute the control guidelines listed below in Section 4, "Controlling Further Spread"

#### **4) CONTROLLING FURTHER SPREAD**

##### **A. Isolation and Quarantine Requirements (N.J.A.C. 8:57-1.12)**

###### **Minimum Period of Isolation of Patient**

None.

###### **Minimum Period of Quarantine of Contacts**

None

##### **B. Protection of Contacts of a Case**

None.

##### **C. Managing Special Situations**

###### **Disease in Birds**

Psittacosis (avian chlamydiosis) diagnosed in birds is reportable to the NJDHSS IZDP by calling 609.588.3121. When a bird in a pet store or one recently purchased from a pet store has been diagnosed with psittacosis, whether or not human cases have occurred as a result of exposure to the diseased bird, control measures in birds will be instituted by the local health officer in collaboration with the IZDP. These measures can include quarantine and treating exposed birds and properly disinfecting cages and other surfaces. Other control measures, including notifying the pet store owner and workers of the diagnosis and the need to see a physician if they have been exposed and develop respiratory illness. Also, depending on the situation, individuals who have purchased birds from the facility may be contacted to inform them about psittacosis, the possibility that their birds may be carriers, and the potential risks to their health and notifying the public who may have visited the store through the posting of public health notices at the store. Typically the IZDP will generate a letter detailing the required control measures and discuss this information with the local health officer.

The purpose of imposing quarantine is to prevent further disease transmission. Reasonable options should be made available to the owners and operators of pet stores. For example, with the approval of state or local authorities, the owner of quarantined birds may choose to (a) treat the birds in a separate quarantine area to prevent exposure to the public and other birds, (b) sell the birds if they have completed at least 7 days of treatment, provided that the new owner agrees in writing to continue the quarantine and treatment and is informed of the disease hazards, or (c) euthanize the infected birds. After completion of the treatment or

removal of the birds, quarantine can be lifted when the infected premises are thoroughly cleaned and disinfected. The area can then be restocked with birds.

In addition to pet shops, there are other high-risk environments in which psittacosis can occur (*e.g.*, poultry farms). In the situation where an infected bird is identified, control measures similar to those described above (*e.g.*, quarantine and treating exposed birds, disinfecting the animal's environment and notifying exposed individuals about their disease risk) would be instituted by the New Jersey Department of Agriculture, Division of Animal Health in collaboration with the IZDP.

For any situation or questions involving the disease in birds and the risk to humans, contact the NJDHSS IZDP at 609.588.3121.

### **Reported Incidence Is Higher than Usual/Outbreak Suspected**

If an outbreak is suspected, investigate to determine the source of infection and mode of transmission. A common source, such as a cluster of sick birds in a pet store, should be sought and applicable preventive or control measures should be instituted. See Section 4 C, Disease in Birds, above. Consult with the NJDHSS IZDP at 609.588.3121. The IZDP staff can help determine a course of action to prevent further cases and can perform surveillance for cases that may cross several jurisdictions and therefore be difficult to identify at a local level.

## **D. Preventive Measures**

### **Environmental Measures**

See Section 4C, "Disease in Birds," above.

### **Personal Preventive Measures/Education**

Recommendations for controlling infection among humans and birds:

- **Protect persons at risk.** Inform all persons in contact with infected birds about the nature of the disease. Instruct them to wear protective clothing, gloves, a disposable surgical cap, and a respirator with an N95 or higher rating when cleaning cages or handling infected birds. Surgical masks might not be effective in preventing transmission of *C. psittaci*. When necropsies are performed on potentially infected birds, wet the carcass with detergent and water to prevent aerosolization of infectious particles and work under a biological safety hood (or equivalent).
- **Maintain accurate records of all bird-related transactions to aid in identifying sources of infected birds and potentially exposed persons.** Records should include the date of purchase, species of birds purchased, individual bird identification, source of birds, and any identified illnesses or deaths among birds. In addition, the seller should record the name, address, telephone number of the customer and individual bird identification (*e.g.* band or microchip number).
- **Avoid purchasing or selling birds that have signs of *C. psittaci* infection.** Signs include ocular or nasal discharge, diarrhea, or low body weight.
- **Isolate newly acquired birds.** Isolation should include housing in a separate airspace from other birds and non-caretakers. Isolate birds, including those that have been to shows, exhibitions, fairs, and other events, for at least 30 days, and test or prophylactically treat them before adding them to a group.
- **Test birds before they are to be boarded or sold on consignment.** House them in a room separate from other birds.
- **Practice preventive husbandry.** Position cages to prevent the transfer of fecal matter, feathers, food, and other materials from one cage to another. Do not stack cages, and be sure to use solid-sided cages or barriers if cages are adjoining. The bottom of the cage should be made of a wire mesh. Litter that will not produce dust (*e.g.*, newspapers) should be placed underneath the mesh. Clean all cages, food bowls, and water bowls daily. Soiled bowls should be emptied, cleaned with soap and water, rinsed, placed in a disinfectant solution, and rinsed again before reuse. Between occupancies by

different birds, cages should be thoroughly scrubbed with soap and water, disinfected, and rinsed in clean, running water. Exhaust ventilation should be sufficient to prevent accumulation of aerosols.

- **Prevent the spread of infection.** Isolate birds requiring treatment. Rooms and cages where infected birds were housed should be cleaned immediately and disinfected thoroughly. When the cage is being cleaned, transfer the bird to a clean cage. Thoroughly scrub the soiled cage with a detergent to remove all fecal debris, rinse the cage, disinfect it (allowing at least 5 minutes of contact with the disinfectant), and rerinse the cage to remove the disinfectant. Discard all items that cannot be adequately disinfected (e.g., wooden perches, ropes, nest material, and litter). Minimize the circulation of feathers and dust by wet-mopping the floor frequently with disinfectants and preventing air currents and drafts within the area. Reduce contamination from dust by spraying the floor with a disinfectant or water before sweeping it. Do not use a vacuum cleaner because it will aerosolize infectious particles. Frequently remove waste material from the cage (after moistening the material), and burn or double-bag the waste for disposal. Care for healthy birds before handling isolated or sick birds.
- **Use disinfection measures.** *C. psittaci* is susceptible to most disinfectants and detergents as well as heat; however, it is resistant to acid and alkali. A 1:1,000 dilution of quaternary ammonium compounds (e.g., Roccal<sup>®</sup> or Zephiran<sup>®</sup>) is effective, as is 70% isopropyl alcohol, 1% Lysol<sup>®</sup>, 1:100 dilution of household bleach (i.e., 2.5 tablespoons per gallon), or chlorophenols. Many disinfectants are respiratory irritants and should be used in a well-ventilated area. Avoid mixing disinfectants with any other product.

### Recommendations for Treating and Caring for Infected Birds

All birds with confirmed or probable psittacosis AC should be isolated and treated, preferably under the supervision of a veterinarian. Birds with suspected AC or birds previously exposed to AC should be isolated and retested or treated. Acceptable treatment is delineated in [the Compendium of Measures to Control Chlamydia psittaci Infection among Humans \(Psittacosis\) and Pet Birds \(Avian Chlamydiosis\)](#), published annually by the National Association of State Public Health Veterinarians. Because treated birds can be reinfected, they should not be exposed to untreated birds or other potential sources of infection. To prevent reinfection, contaminated aviaries should be thoroughly cleaned and sanitized. No AC vaccines are available. The following general recommendations should be followed when treating and caring for birds with confirmed, probable, or suspected cases of AC:

- Protect birds from undue stress (e.g., chilling or shipping), poor husbandry, and malnutrition. These problems reduce the effectiveness of treatment and promote the development of secondary infections with other bacteria or yeast.
- Observe the birds daily, and weigh them every 3–7 days. If the birds are not maintaining weight, have them reevaluated by a veterinarian.
- Avoid high dietary concentrations of calcium and other divalent cations because they inhibit the absorption of tetracyclines. Remove oyster shell, mineral blocks, and cuttlebone from bird diet.
- Isolate birds that are to be treated in clean, uncrowded cages.
- Clean up all spilled food promptly; wash food and water containers daily.
- Provide fresh water and appropriate vitamins daily.
- Continue medication for the full treatment period to avoid relapses. Birds can appear clinically improved and have reduced chlamydial shedding after 1 week.

## ADDITIONAL INFORMATION

A [Psittacosis Fact Sheet](#) can be obtained at the NJDHSS website at <<http://www.state.nj.us/health>> Click on the “Topics A to Z” link and scroll down to the subject *Psittacosis*.

The formal Centers for Disease Control and Prevention (CDC) surveillance case definition for psittacosis is the same as the criteria outlined in Section 2 A of this chapter. CDC case definitions are used by state health departments and CDC to maintain uniform standards for national reporting. For reporting to the NJDHSS, always refer to Section 2 A.

## REFERENCES

American Academy of Pediatrics. 2000 Red Book: Report of the Committee on Infectious Diseases, 25<sup>th</sup> Edition. Illinois, Academy of Pediatrics, 2000.

CDC. Case Definitions for Infectious Conditions Under Public Health Surveillance, MMWR. 1997; 46:RR-10.

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Chin, J., ed., Control of Communicable Diseases Manual, 17<sup>th</sup> Edition. Washington, DC, American Public Health Association, 2000.

Massachusetts Department of Public Health, Division of Epidemiology and Immunization. Guide to Surveillance and Reporting. Massachusetts Department of Public Health, Division of Epidemiology and Immunization, January 2001.

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<http://www.avma.org/pubhlth/psittacosis.asp>